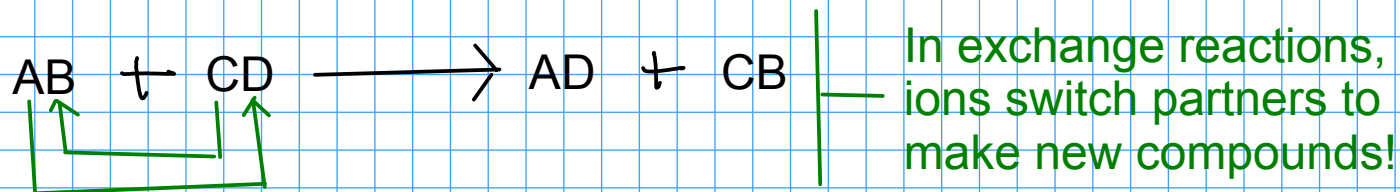


## DOUBLE REPLACEMENT (EXCHANGE) REACTIONS

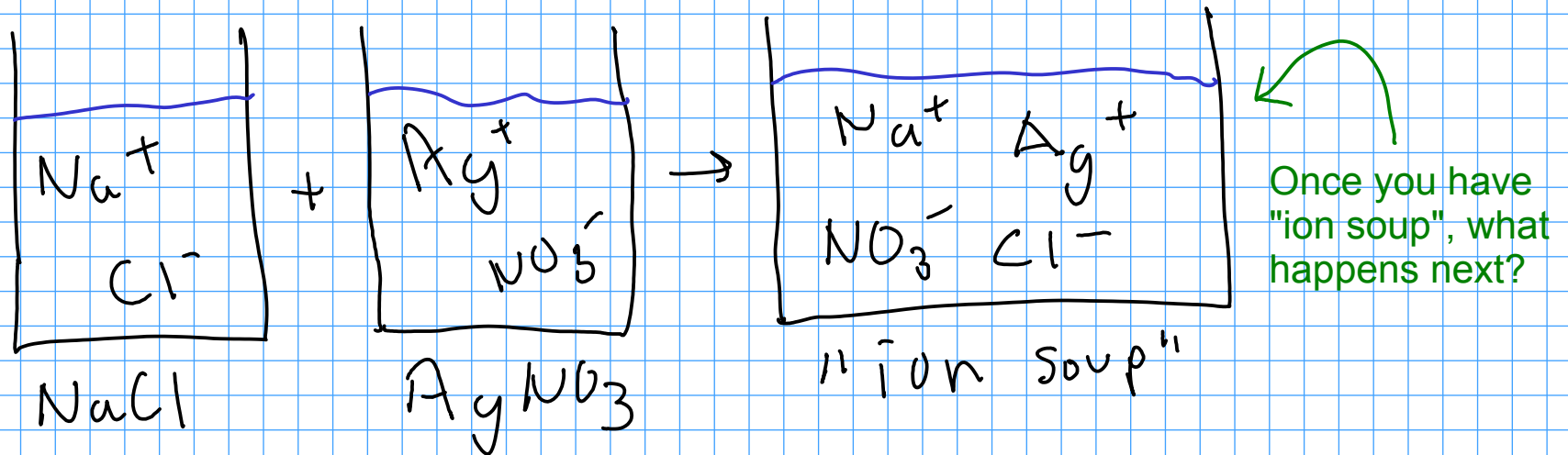
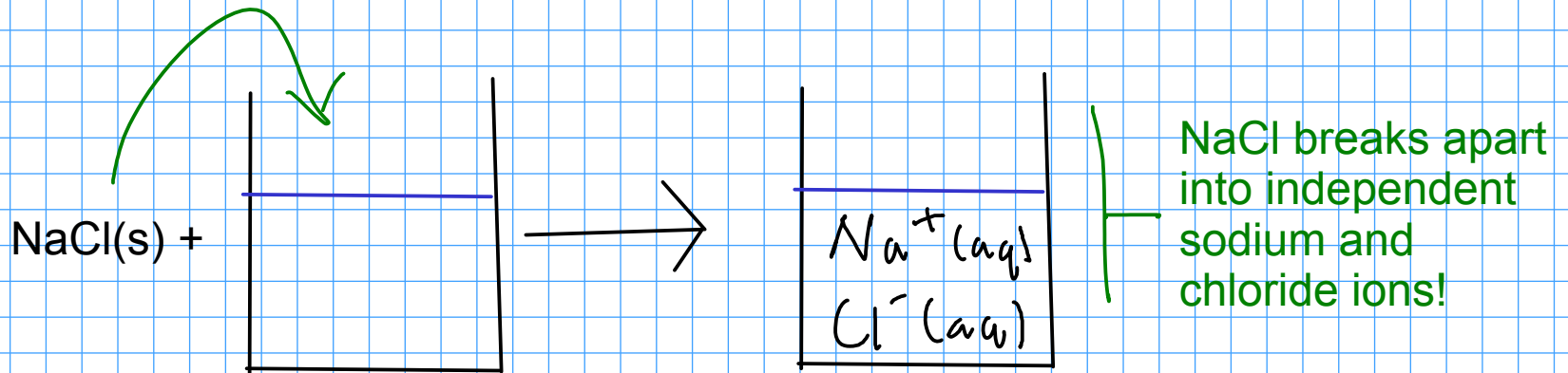


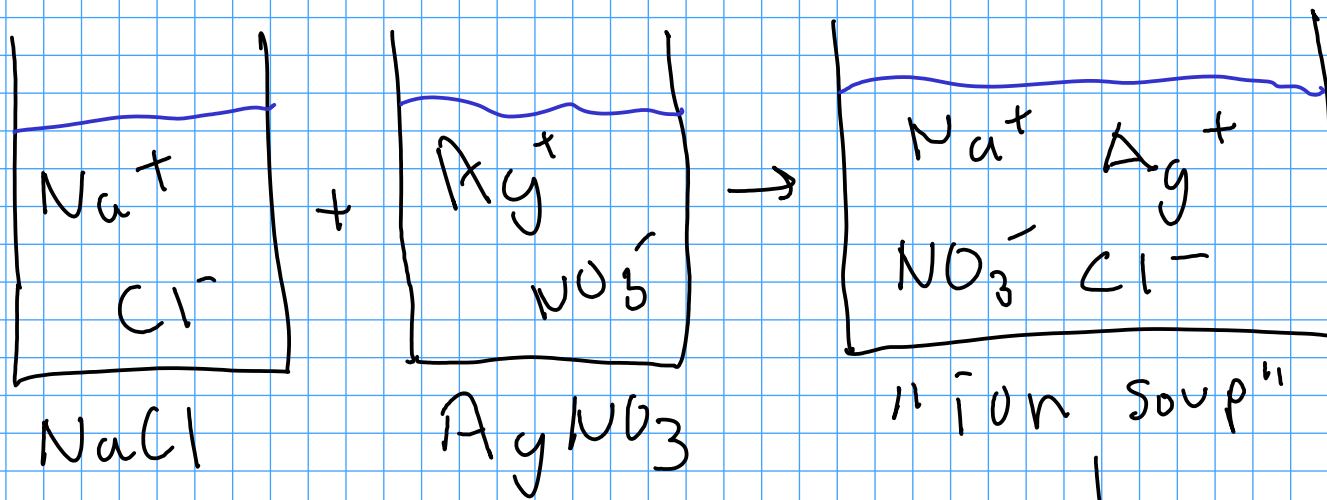
... but HOW do they switch partners?

- ① Exchange reactions almost always take place in AQUEOUS SOLUTION
- ② In aqueous solution, IONIC THEORY applies!

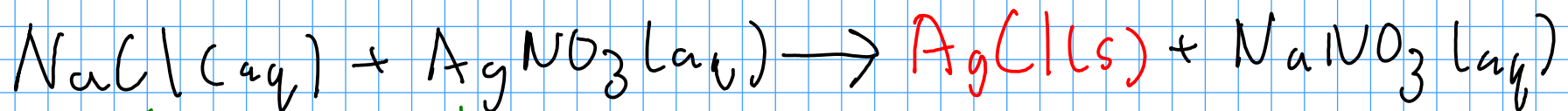
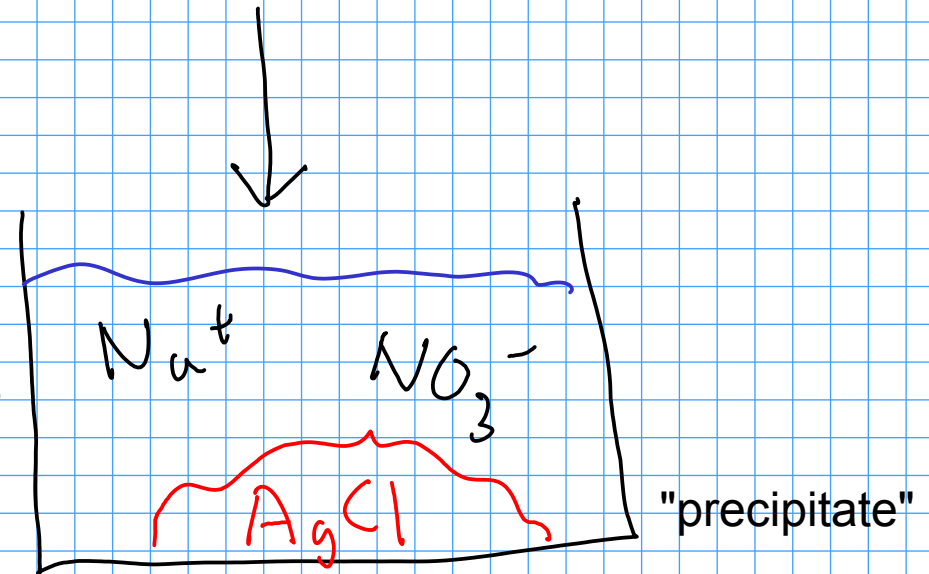
# IONIC THEORY OF SOLUTIONS

- Briefly, ionic theory states that certain substances (like soluble ionic compounds) break apart into their component ions when dissolved in water!





When silver and chloride ions meet, they form an **INSOLUBLE** compound, silver(I) chloride. This falls out of the solution



Formation of  $\text{AgCl}$  drives this reaction!

For an exchange reaction to proceed, there must be something (a new product) DRIVING the reaction.

3 kinds of exchange chemistry:

- ① Reactions that form PRECIPITATES (insoluble ionic compounds)
- ② Reaction that form STABLE MOLECULES like water  
- if water forms, reaction is called "neutralization"
- ③ Reactions that form UNSTABLE MOLECULES that break down into other small molecules, often gases.



If any of these three possibilities form from the "ion soup", a reaction will occur.

If not, NO reaction occurs.